CLINICAL SCIENCE

COMPARISON OF SELF-REPORT AND INTERVIEW ADMINISTRATION METHODS BASED ON THE BRAZILIAN VERSIONS OF THE WESTERN ONTARIO ROTATOR CUFF INDEX AND DISABILITIES OF THE ARM, SHOULDER AND HAND QUESTIONNAIRE IN PATIENTS WITH ROTATOR CUFF DISORDERS

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OBJECTIVE: The purpose of the present study was to compare self-report and interview administration methods using the Western Ontario Rotator Cuff Index (WORC) and Disabilities of the Arm, Shoulder and Hand Questionnaire (DASH) in patients with rotator cuff disorders.

METHODS: Thirty male and female patients over 18 years of age with rotator cuff disorders (tendinopathy or rotator cuff tear) and Brazilian Portuguese as their primary language were recruited for assessment via administration of the Western Ontario Rotator Cuff Index and and Disabilities of the Arm, Shoulder and Hand Questionnaire. A randomization method was used to determine whether the questionnaires would be self-reported (n=15) or administered by an interviewer (n=15). Pearson correlation coefficients were used to evaluate the correlation between the Western Ontario Rotator Cuff Index and and Disabilities of the Arm, Shoulder and Hand Questionnaire in each group. The t-test was used to determine whether the difference in mean questionnaire scores and administration time was statistically significant. For statistical analysis, the level of significance was set at 5%.

RESULTS: The mean subject age was 55.07 years, ranging from 27 to 74 years. Most patients had a diagnosis of tendinopathy (n=21). With regard to level of schooling, the majority (n=26) of subjects had completed a college degree or higher. The mean questionnaire scores and administration times did not significantly differ between the two groups ($p>0.05$). There were statistically significant correlations ($p<0.05$) between Western Ontario Rotator Cuff Index and and Disabilities of the Arm, Shoulder and Hand Questionnaire, and strong correlations were found between the questionnaires in both groups.

CONCLUSION: There are no differences between the Western Ontario Rotator Cuff Index and Disabilities of the Arm, Shoulder and Hand Questionnaire administration methods with regard to administration time or correlations between the questionnaires.

KEYWORDS: Shoulder; Rotator cuff; Questionnaires; Quality of life; Validation studies.

INTRODUCTION

Shoulder pain is the third most common musculoskeletal condition encountered in medical practice (following back and neck pain), and causes significant disability.[1-3] Rotator cuff disorders are the most common shoulder problem and are associated with pain, impairment in daily living activities, disability, and loss of productivity.[1-6] A considerable amount of research has been published evaluating therapeutic interventions and the effectiveness of treatment alternatives for patients with rotator cuff disease, and there is a growing interest in measuring the impact of treatment on functional

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status and health-related quality of life (HRQOL).[1,2,5-8]

The literature supports the use of questionnaires for monitoring health status as well as outcome following treatment of patients with shoulder conditions.[7,9-12] As validation is an evolving property and ongoing process, it is important for the performance of the measure to be assessed in different patient populations with similar attributes of interest.[13] Psychometric properties depend on the setting and population in which they are assessed.[11,14,15] Standard questionnaire validation methodology has been carried out in a number of countries to ensure that translated versions are equivalent to the original, thereby facilitating the exchange of information within the international scientific community.[1,16] The availability of these kind of sources in the literature enables the clinicians and researchers to assess the content and quality of questionnaires and to choose the most appropriate instrument for their purposes.[1,11,16]

The Western Ontario Rotator Cuff Index (WORC) is a disease-specific HRQOL questionnaire utilized for patients with rotator cuff conditions and has proven reliable and valid.[1,5,6,17-20] The WORC has been validated in Brazilian Portuguese and has demonstrated strong correlations with the Disabilities of the Arm, Shoulder, and Hand Questionnaire (DASH).[1,18]

The DASH is a regional questionnaire developed to measure physical disability and symptoms of the upper limbs, and it has also been validated in Brazilian Portuguese.[21,22] The DASH has been recommended for evaluative purposes in outpatient clinics for shoulder disabilities.[11]

Although the original versions of the WORC and DASH questionnaires were developed as self-reports, validation of the Brazilian versions of these questionnaires utilized a face-to-face interview.[1,22] The purpose for using interview administration is to minimize errors, especially among populations with low levels of schooling.[1,22] However, the self-report technique is an easier method since it does not require an interviewer.

The aim of the present study was to compare the self-report and interview administration methods of the WORC and DASH questionnaires among patients with rotator cuff disorders.

MATERIALS AND METHODS

Thirty male and female patients over 18 years of age with rotator cuff disorders (tendinopathy or rotator cuff tear) and Brazilian Portuguese as their primary language were recruited between October 2007 and April 2008. Diagnoses were determined by the medical staff and were confirmed by the appropriate and available radiological evaluations (ultrasound and/or magnetic resonance imaging). Patients with cognitive, neurological, or rheumatic disorders or other shoulder diseases were excluded.

A randomization table arranged in groups of five digits was used to determine whether the WORC and DASH would be administered using self-report or interview techniques.[23] Equal numbers of patients were intended for both groups (self-report and interviewer-administered methods). Selection of the 30 consecutive numbers begins on Line 5 of the randomization table. The random numbers corresponding to each subject were arranged in increasing numerical order. The first half of the sample was allocated to the self-report method (Group 1; n=15), and the second was allocated to the interviewer-administered method (Group 2; n=15).

The WORC and DASH questionnaires were delivered to the patients in Group 1 or administered via a face-to-face interview by trained physiotherapists for patients in Group 2.

WESTERN ONTARIO ROTATOR CUFF INDEX

The WORC is a self-reported questionnaire comprising 21 items in five life and health domains (Physical Symptoms, Sports/Recreation, Work, Lifestyle, Emotions).[1,5,6] All items have the same weight, and each has a possible score ranging from 0 to 100 (100 mm VAS). Each domain can be scored separately, and the total score of the questionnaire ranges from 0 to 2100. To improve the interpretability of the scoring system, the authors of the original version of the WORC recommend that the data be converted to a percentage score by inverting the raw score and converting it to a score out of 100. A score of 0% is the worst score possible, whereas 100% implies no reduction in HRQOL.[1,5,6]

DASH DISABILITIES QUESTIONNAIRE

The DASH is a regional questionnaire that was developed to measure physical disability and symptoms of the upper limbs. It contains 30 questions designed to measure physical function and symptoms, including twenty-one items related to physical function, six items related to symptoms, and three items that assess social function. The score is calculated by applying established formulas, and scores range from 0 to 100; scores of 0 and 100 represent the best and worst scores, respectively.[21,22]

Statistical Analyses

Descriptive statistics were compiled for baseline characteristics of the study population. Pearson correlation coefficients were used to evaluate the correlation between the WORC and DASH questionnaires in each group. The

t-test was used to determine whether the difference in mean questionnaire scores and administration time was statistically significant (between-group comparisons). The level of significance was set at 5% for all statistical analyses.

Ethical Considerations

The study protocol was approved by the Research Ethics Committee, and information was collected only after obtaining written informed consent from the subjects.

RESULTS

Baseline characteristics of the study population (n=30) are provided in Table 1. The mean subject age was 55.07 years, ranging from 27 to 74 years. Most patients were diagnosed with tendinopathy (n=21). With regard to the level of schooling, the majority of the subjects (n=26) had completed a college degree or higher. Mean questionnaire scores and administration time did not differ significantly ($p>0.05$) between the two groups (Table 2). There were statistically significant correlations ($p<0.05$) between the WORC and DASH, and strong correlations were demonstrated between the questionnaires in both groups (Group 1= -0.87; Group 2 =-0.94) (Table 3).

Table 1 - Baseline Characteristics

Characteristics	N=30	
Age (years)		
Mean (SD)	55.07 (10.83)	
Range	27-74	
Gender	N	%
Female/Male	14/16	46.7/53.3
Education		
Elementary school	2	6.7
High school	2	6.7
College degree	14	46.6
Post-graduation	12	40.0
Diagnosis		
Tendinopathy	21	70.0
Partial thickness rotator cuff tear	6	20.0
Full thickness rotator cuff tear	3	10.0
Duration of symptoms		
< 1 year	25	83.3
1 to 2 years	2	6.7
> 2 to 5 years	2	6.7
> 5 years	1	3.3
Treatment		
Physiotherapy	23	76.7
Physiotherapy after surgery		
Subacromial Decompression	1	3.3
Rotator Cuff Repairs	6	20.0

SD, Standard Deviation

DISCUSSION

In the present study, most patients had attained a college degree or higher. In the validation study of the Brazilian version of the WORC, the majority of individuals in the sample had an elementary school education or less.[1] Such studies are generally carried out in public or university institutions in Brazil;[1] however, the present study was conducted at a private institution. The authors of the validation study of the Brazilian version of the DASH considered a low education level.[22] These facts should be taken into consideration when the instrument is selected for use in a population.[1,16]

Table 2 - Scores for the questionnaires and administration time in each group

	Self-Report Group (N=15)		Interviewer-administered Group (N=15)		*p*-value
	Mean (SD)	95% CI	Mean (SD)	95% CI	
Total WORC					
(0-100)	65.8(20.4)	[54.47;77.15]	73.1(25.8)	[58.74;87.41]	0.40
Physical Function	71.4(20.0)	[60.34;82.54]	79.7(23.1)	[66.90;92.58]	0.30
Sports/recreation	53.4(21.5)	[41.45;65.34]	61.6 (30.2)	[44.88;78,41]	0.39
Work	55.8(29.6)	[39.44;72.28]	66.8 (31.1)	[49.56;84.10]	0.33
Lifestyle	69.0(32.7)	[50.95;87.21]	77.9 (25.3)	[63.91;91.95]	0.41
Emotions	80.0(27.1)	[64.97;95.06]	76.8 (34.3)	[57.80;95.88]	0.78
DASH (0-100)	29.7(21.5)	[17.85;41.69]	26.0 (25.1)	[12.12;39.98]	0.66
Administration Time (minutes)					
WORC	5.1(2.4)	[3.78;6.53]	4.7 (1.4)	[3.86;5.53]	0.54
DASH	6.0(1.7)	[5.04;7.06]	6.7 (2.9)	[5.04;8.49]	0.45

SD, Standard Deviation; DASH, Disabilities of Arm, Shoulder and Hand Questionnaire; WORC, Western Ontario Rotator Cuff Index; Group 1; Self-Report Method; Group 2; Interviewer-administered; *p < 0.05

Table 3 - Pearson Correlation Coefficient between WORC and DASH in each group

Self-Report Group (N=15)		Interviewer-administered Group (N=15)	
Correlation Coefficient (r)	*p*-value	Correlation Coefficient (r)	*p*-value
-0.87	0.000*	-0.94	0.000*

*p<0.001; DASH, Disabilities of Arm, Shoulder and Hand Questionnaire; WORC, Western Ontario Rotator Cuff Index

Although the original versions were developed as self-report questionnaires, validation studies of the Brazilian versions of the WORC and DASH administered these questionnaires using face-to-face interviews.[1,6,21,22] Orfale et al. and Lopes et al. state that most patients in Brazil are either not accustomed to self-administered questionnaires or do not have sufficient schooling to respond to this type of questionnaire.[1,22] The interview procedure has been used in other Brazilian studies.[24,25]

In the present study, strong correlations were found between the DASH and WORC with regard to both administration methods (self-report and interview format). Strong correlations between the WORC and DASH were also demonstrated in the Brazilian validation study, as well as the original English-version study.[1,6] Other studies have assessed and compared the self-report and interviewer-administered methods.[26,27] A study on the Brazilian Portuguese version of the WORK Productivity and Activity Impairment – General Health Questionnaire assessed the reliability of these administration methods, and both were found to be satisfactory.[26] Another study involving reliability assessment and comparison of administration methods demonstrated that application of the self-report format was only superior if the subjects had completed high school, as the level of confidence was higher in this group.[27] The availability of this source of study in the literature is important for clinicians and researchers assessing the content and quality of questionnaires because it enables them to choose the most appropriate measures for different purposes.[11]

Time, effort, and other demands placed on those to whom the instrument is administered are additional aspects to consider with regard to the content and quality of questionnaires.[28] In the present study, there were no differences between the self-report and interviewer-administered methods for the WORC and DASH questionnaires with regard to administration time.

There were no differences between the administration methods assessed the WORC and DASH questionnaires with respect to the level of the respondents' schooling. For clinical applications, professionals treating patients having similar characteristics to those in the present study can choose to administer the WORC and DASH questionnaires in either the self-report or interview format.

CONCLUSION

There are no differences between the administration methods of the WORC and DASH questionnaires with regard to administration time or correlations between the questionnaires.

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